

REMARKS

Claims 1-16 are pending in the application. Claims 1-16 are rejected.

Claims 1, 2, 15 and 16 have been amended to clarify the claimed invention. The output is clarified to recite outputting a word whose word length is constant.

Claims 1, 2, 8 and 13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Titchener in view of Kawazoe et al. (Kawazoe). Claims 15 and 16 are under 35 U.S.C. § 103(a) as being unpatentable over Titchener in view of Kawazoe et al. and Astrachan.

The Office Action of July 14, 2004 asserts on page 12 that applicant's claims do not clearly describe whether the output word, after operation, is having a constant word length.

Applicant respectfully submits that the herein clarification recites that the operation means for outputting a word whose word length is constant. It is respectfully submitted that applicant's independent claims 1, 2, 15 and 16 include a combination of unique features which are not suggested in the combination of cited references for at least the following reasons:

Neither references teaches or suggests the operating-object holding means sequentially holding each word respectively consisting of plural bits of transmission information, and divided into constant word lengths, in combination with the operation means outputting a word whose word length is constant.

This is in contrast to the combination of references where neither an object being subjected to a logical operation nor an argument being applied to a subsequent logical operation is supplied as: a word which is added a bit being fed subsequently; or a word which includes a part of the operation object or the argument, and a bit subsequent to the part, and outputting a word whose word length is constant.

The Office Action points to col. 46, lines 40-43 of Titchener. However, this is different from applicant's claimed invention where the operating-object holding means sequentially holding each word and argument holding means for holding an argument that should be applied to an operation that is performed on a word that is subsequently held by said operating-object holding means. Col. 46, lines 40-48 of Titchener describe "transferring the least significant bit from the fixed length code to the variable length code..."

Applicant's operating-object holding means is fed by being divided into units of constant word lengths consisting of plural bits, respectively. In the process of a logical operation to achieve coding or decoding, the word is supplied to operation means through argument holding means when needed.

As previously pointed out three different sections of Titchener are being picked and chosen from to fit the operating-object holding means recited in applicant's claims. Because unrelated sections of Titchener are being pieced together the rejection should be withdrawn.

The Office Action points to col. 45, lines 12-13 where Titchener describes the buffer means for each selected input code, then points to col. 46, lines 40-43 which describes a different input buffer means, then col. 41 is pointed to for the argument holding means for holding an argument that should be applied to an operation that is performed on a word that is subsequently held by said operating-object holding means, however in this section Titchener never suggest the operating-holding means sequentially holding each word respectively consisting of plural bits of transmission information, and divided into constant word lengths.

In addition the Office Action admits that Titchener fails to teach the logical operation on a combination of logic values. The Office Action asserts that Kawazoe teaches a simple convolutional encoder and encoder of arbitrary length.

Kawazoe teaches these type of words are input a bit at a time, and becomes an operating object of a logical operation repeatedly over a number of times (the number of times being the same number as the number of stages in the shift register.

Additionally the argument in Kawazoe, which is a part or all of the results of the preceding logical operation performed, will never be an object of a subsequent logical operation.

In contrast applicant's claims include "sequentially holding each word respectively consisting of plural bits of received series, and divided into constant word lengths." Therefore the word thus being held in the operating-object holding means is never updated until a subsequent word which includes subsequent bits shorter than those constituting the above constant word lengths is determined, even when the subsequent bits are to be sequentially determined.

In the Office Action it's also argued that it would have been obvious to make such a combination of Titchener in view of Kawazoe. However it is respectfully submitted that one skilled in the art would have found no motivation to make such a combination. There is no suggestion in the references themselves nor is there any motivation provided in the Office Action. The Office Action only states that it would have been obvious. The applicant is not provided with any reference or indication as to what makes this obvious in order to judge the assertion of the Examiner. The only such suggestion provided has been from applicant's own disclosure.

In addition to the above reasons it is submitted that applicant's operation means never retries the logical operation until a subsequent word is supplied. As pointed out above applicant claims "sequentially holding each word respectively consisting of plural bits of received series, and divided into constant word lengths" and "holding an argument that should be applied to an

operation that is performed on a word that is subsequently held by said operating-object holding means" and "performing, as said operation, in accordance with logical values of individual bits that are included in said word being held by said operating-object holding means and said argument being held by said argument holding means, coding that is defined as a logical operation to be performed on a combination of said logical values."

The results of these logical operations indicate direct results of desired coding and decoding.

In Kawazoe the object of logical operation is changed even in the process of determining such subsequent word, or since the logical operation is performed on the assumption that its object could make such changes, the invention in Kawazoe indispensably requires a complex hardware. The complex hardware must perform additional control operations such as synchronization or the like to properly obtain a result of the convolutional coding, as described in column 5, lines 59-61 in Kawazoe et al. that "upon each 3-bit addition of the original data D, the 4-bit (I_1 , I_2 , Q_1 , Q_2) convolutional code is output".

It is respectfully submitted that at least the forgoing differences between the cited references and the present invention, claims 1 and 2, would not have been obvious in view of such a proposed combination.. Claims 8 and 13 depend on claims 1 and 2 and are likewise allowable for at least the foregoing reasons and because each claim includes additional distinguishing features.

Claims 15 and 16 are also essentially different in their configurations from the combination of Titchener, Kawazoe et al., and Astrachan. Moreover, none of Titchener, Kawazoe et al., and Astrachan suggest such a combination of references as proposed in the Office Action.


Claims 3, 4, 6, 7, 9, 11, 12 and 14 are rejected under 35 U.S.C. §103(a) as being unpatentable over Titchener in view of Kawazoe and further in view of Lan et al. Claims 5 and 10 are also rejected as unpatentable under Titchener and Kawazoe and further in view of Kindred et al.

Claims 3-7, 9-12 and 14 depend on either of claims 1 and 2 and are likewise allowable for at least the foregoing reasons and because each claim includes additional distinguishing features.

In view of the remarks set forth above, this application is in condition for allowance which action is respectfully requested. However, if for any reason the Examiner should consider this application not to be in condition for allowance, the Examiner is respectfully requested to telephone the undersigned attorney at the number listed below prior to issuing a further Action.

Any fee due with this paper may be charged to Deposit Account No. 50-1290.

Respectfully submitted,


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